REMARKS

Claims 1-19 are pending in the application. Claims 1 and 17 have been amended. Claim 2 has been canceled. Entry of the amendment, and reexamination and reconsideration of the application based on the above-indicated amendments and the following remarks are respectfully requested.

Rejections under 35 U.S.C. §112:

Claims 1-19 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. It is the Examiner's position that the phrase "or a mixture of two or more thereof" is unclear. Claims 1-5, 7, 9, 11, 13 and 15-19 have been rejected under 35 U.S.C. §112, first paragraph, as being non-enabling for double solvates of two different organic solvents. Claim 1 has been amended to delete the phrase "or a mixture of two or more thereof".

Claims 1-2 and 7-16 have been rejected under 35 U.S.C. §112, first paragraph, as not reasonably providing enablement for solvent other than 1-propanol. The Examiner contends that Example 7 used 2-pentanol, Example 8 used 1-pentanol, Example 9 used t-amyl alcohol and Example 10 used 1-propanol, but the actual products are solvates of both water and alcohol, and such compounds do not fall within claim 1. Claims 7-14 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner contends that the compounds of examples 7, 9, 11 and 13 are actually solvate hydrates and changing the name would "fix the problem". Claim 19 has been rejected under 35 U.S.C. §112, first paragraph, as not reasonably providing enablement for the solvate. The Examiner contends that Applicants have not shown that Formula II forms the hydrate of claim 19.

Applicants respectfully traverse the rejections for at least the following reasons. As an initial matter, Applicants wish to point out that "hydration" is solvation, with the solvent bring water. Attached hereto as Exhibit A is an excerpt from HAWLEY'S CONDENSED CHEMICAL DICTIONARY, (11th ed. 1987), citing the entries for "hydration" and "solvation". As is well known by those having ordinary skill in the art, and as evidenced by the dictionary reference, "the phenomenon [of

hydration] is also called solvation". Thus the term "solvates" includes compounds having water and/or another solvent adsorbed on the solute. Accordingly, claims 7-14 are not indefinite.

Claims 1-2, 7-16 and 19 are fully supported by the disclosure, as the disclosure contains sufficient information regarding the solvates and crystals of the claims as to enable one skilled in the art to make and use the claimed solvates and crystals. Applicants have provided ten working examples that sufficiently detail how to make the claimed solvates and crystals. It is not necessary that Applicants provide a working example for each and every solvate and crystal covered by the claims. As stated in MPEP §2164.02:

> The specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without undue amount of experimentation. *In re Borkowski*, 422 F.2d 904, 908, 164 USPQ 642, 645 (CCPA 1970).

As further stated in MPEP §2164.06:

> [A] considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. *In re Wands,* 858 F. ed at 737, 8 USPQ2d at 1404.

Applicants have provided more than enough information to enable the invention claimed. The specification need not be a blueprint in order to satisfy the requirement for enablement under 35 U.S.C. §112, first paragraph. One skilled in the art reading Applicants' specification at the time it was filed would have been taught how to make the full scope of the claimed invention without undue experimentation. Accordingly, the rejection of claims 1-2, 7-16 and 19 under 35 U.S.C. §112, first paragraph, should be withdrawn.

Objection to the Specification:

The Examiner has objected to the specification, stating that Examples 7-10 appear to be defective because the compounds are listed as hydrates, and yet water was not used. Applicants respectfully submit that Examples 7-10 are not defective.

The source of the water may be the amorphous powder of the compound (I), which has not been identified as being anhydrous. The source of the water may also be impurities in the solvents used in the process and/or water absorbed from the environment. It is noted that the crystalline forms of the compounds have different degrees of water absorption depending on the environment.

Objection to the Claims:

Claim 19 has been objected to as improperly dependent on claim 17. Claim 17 has been amended to recite that the compound (II), the solvate or a crystal thereof is produced by deprotecting the solvate of the compound (I) or a crystal thereof. Support for the amendment is found in the specification at page 12, lines 14-27. In view of the amendment to claim 17, claim 19 is properly dependent therefrom.

Conclusion:

Applicant respectfully submits that this application is in condition for allowance. A Notice of Allowance is respectfully solicited.

In the event there are any issues the Examiner would like to discuss with the undersigned attorney, it is requested that he contact the undersigned by telephone.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 under Attorney Docket No. SHIOP0100US.

Respectfully submitted,
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Hawley's Condensed Chemical Dictionary

ELEVENTH EDITION

Revised by

N. Irving Sax
and
Richard J. Lewis, Sr.

VNR VAN NOSTRAND REINHOLD COMPANY
New York

Hazard: A poison.
Use: Biocide for protection of wool, leather, paints, and wood products.

hydrase. See hydrolase.

hydrate. See hydration.

hydrated aluminum oxide. See alumina trihydrate.

hydrated silica. See silicic acid.

hydration. (1) The reaction of molecules of water with a substance in which the H—OH bond is not split. The products of hydration are called hydrates, i.e.,

$$CuSO_4 + 5HOH \rightarrow CuSO_4 \cdot 5HOH$$

A given compound often forms more than one hydrate; the hydration of sodium sulfate can give $Na_2SO_4 \cdot 10HOH$ (decahydrate), $Na_2SO_4 \cdot 7HOH$ (heptahydrate), and $Na_2SO_4 \cdot HOH$ (monohydrate). In formulas of hydrates, the addition of the water molecules is conventionally indicated by a centered dot. The water is usually split off by heat, yielding the anhydrous compound.
See also water of crystallization, gas hydrate.

(2) The strong affinity of water molecules for particles of dissolved or suspended substances that is the fundamental cause of electrolytic dissociation. Ions and other charged particles thus acquire a tightly held film of water, an effect that is important in the stabilization of colloidal solutions. The phenomenon is also called solvation. The term hydration is used in the paper industry to describe the combination of water with wood pulp in the beater, as a result of which fiber-to-fiber adhesion is increased by hydrogen bonding.
See also solvation.

hydraulic. (1) Descriptive of a machine or operation in which a liquid is used to exert or transfer pressure, e.g., hydraulic press, hydraulic fracturing. The liquid is usually water, but it may also be of higher viscosity such as a heavy oil or glycol-type lubricant, as in brake fluid. (2) Descriptive of a material that hardens on addition of water, e.g., hydraulic cement.
See also following entries.

hydraulic barking. Removal of bark from logs by impingement of a stream of water delivered from one or more nozzles at a pressure of 1200–1400 psi. Several types of machines are used, the best known being the Hansel barker.

hydraulic cement. See cement, hydraulic.

hydraulic fluid. A liquid or mixture of liquids designed to transfer pressure from one point to another in a system on the basis of Pascal's Law, i.e., pressure on a confined liquid is transmitted equally in all directions. For industrial use, such fluids are based on paraffinic and cycloparaffinic petroleum fractions, usually with added antioxidant and viscosity index improvers. Flame-resistant types include additives such as phosphate esters or emulsions of water and ethylene glycol. The brake fluids used in autos are composed of (1) a lubricant (polypropylene glycol of 1000–2000 mw, a castor oil derivative, or a synthetic polymeric mixture of monobutyl ethers of oxyethylene and oxypropylene glycols); (2) a solvent blend (mixture of glycol ethers); and (3) additives for corrosive resistance, buffering, etc.; bp 375–550F. The composition and performance characteristics are specified by the Society of Automotive Engineers.

hydraulic fracturing. A method of enhanced recovery of natural gas and petroleum. An aqueous solution of a water-soluble gum (e.g., guar), in which coarse sand or sintered bauxite is suspended, is introduced through a well bore under extremely high pressure into the rock structure in which the gas or oil is entrained. This creates minute fissures (fractures) in the rock which are held open by the suspended particles after the liquid has drained off. The hydrocarbon flows through these fissures to the well bore, and is evacuated to a pipeline. The sand and bauxite are called "proppants" by petroleum engineers as they prevent the fissures from closing. Sand is used in shallower wells and bauxite in formations over 10,000 ft deep.
See also chemical flooding.

hydraulic lime. See lime, hydraulic.

hydraulic press. A simple machine (the only one discovered since prehistoric times) that operates on Pascal's principle (1650): pressure applied to a unit area of a confined liquid is transmitted equally in all directions throughout the liquid. A hydraulic press is comprised of a large piston in an enclosed chamber; its top is attached to a platen that rests on the members of a metal frame when the press is open. Water (or oil) is pumped into the chamber through a valve; once it has been filled, whatever pressure per square inch is applied at the valve will be transmitted to *every* square inch of the piston and of the walls of the chamber as well. Thus, for a piston whose cross-sectional area is 100 sq in., 10 psi at the valve will exert 1000 lb pressure on the bottom of the piston, causing it to rise and the press to close. The pressure on the object being pressed varies inversely with its area. Hydraulic presses exerting pressures up to 15 *tons* are used for shaping steel products. Less dramatic are

solvation. In the parlance of colloid chemistry, the adsorption of a microlayer or film of water or other solvent on individual dispersed particles of a solution or dispersion. The term "solvated hulls" has been used to describe such particles. It is also applied to the action of plasticizers on resin dispersions in plastisols.
See also hydration (2).

Solvay process. (ammonia soda process). Manufacture of sodium carbonate (soda ash, Na_2CO_3) from salt, ammonia, carbon dioxide, and limestone by an ingenious sequence of reactions involving recovery and reuse of practically all the ammonia and part of the carbon dioxide. Limestone is heated to produce lime and carbon dioxide. The latter is dissolved in water containing the ammonia and salt, with resultant precipitation of sodium bicarbonate. This is separated by filtration, dried, and heated to form normal sodium carbonate. The liquor from the bicarbonate filtration is heated and treated with lime to regenerate the ammonia. Calcium chloride is a major byproduct. *Note*: Because this process requires much energy and pollutes streams and rivers with chloride effluent many plants using it have closed, production being obtained from the natural deposits in the Western US.

"Solvenol."[266] TM for a group of monocyclic terpene hydrocarbons with minor amounts of terpene alcohols and ketones.
Use: General solvent, rubber reclaiming.

solvent. A substance capable of dissolving another substance (solute) to form a uniformly dispersed mixture (solution) at the molecular or ionic size level. Solvents are either polar (high dielectric constant) or non-polar (low dielectric constant). Water, the most common of all solvents, is strongly polar (dielectric constant 81), but hydrocarbon solvents are non-polar. Aromatic hydrocarbons have higher solvent power than aliphatics (alcohols). Other organic solvent groups are esters, ethers, ketones, amines, and nitrated and chlorinated hydrocarbons.

The chief uses of organic solvents are in the coatings field (paints, varnishes and lacquers), industrial cleaners, printing inks, extractive processes, and pharmaceuticals. Since many solvents are flammable and toxic to varying degrees, they contribute to air pollution and fire hazards. For this reason their use in coatings and cleaners has declined in recent years.
See individual compounds.

solvent, aprotic. A solvent that cannot act as a proton acceptor or donor i.e., as an acid or base.

solvent drying. Removal of water from metal surfaces by means of a solvent that displaces it preferentially, as on precision equipment, electronic components, etc. Examples of solvents used are acetone, 1,1,2-trichloro-1,2,2-trifluorethane, 1,1,1-trichloroethane.

solvent dye. See dye, solvent.

solvent extraction. A separation operation which may involve three types of mixture: (a) a mixture composed of two or more solids, such as a metallic ore; (b) a mixture composed of a solid and a liquid; (c) a mixture of two or more liquids. One or more components of such mixture are removed (extracted) by exposing the mixture to the action of a solvent in which the component to be removed is soluble. If the mixture consists of two or more solids, extraction is performed by percolation of an appropriate solvent through it. This procedure is also called leaching, especially if the solvent is water; coffee-making is an example. Synthetic fuels can be made from coal by extraction with a coal-derived solvent followed by hydrogenation.

In liquid-liquid extraction one or more components are removed from a liquid mixture by intimate contact with a second liquid which is itself nearly insoluble in the first liquid and dissolves the impurities and not the substance that is to be purified. In other cases the second liquid may dissolve, i.e., extract from the first liquid, the component that is to be purified, and leave associated impurities in the first liquid. Liquid-liquid extraction may be carried out by simply mixing the two liquids with agitation and then allowing them to separate by standing. It is often economical to use counter-current extraction, in which the two immiscible liquids are caused to flow past or through one another in opposite directions. Thus fine droplets of heavier liquid can be caused to pass downward through the lighter liquid in a vertical tube or tower.

The solvents used vary with the nature of the products involved. Widely used are water, hexane, acetone, isopropyl alcohol, furfural, xylene, liquid sulfur dioxide, and tributyl phosphate. Solvent extraction is an important method of both producing and purifying such products as lubricating and vegetable oils, pharmaceuticals and nonferrous metals.

solvent, latent. (co-solvent). An organic liquid that will dissolve nitrocellulose in combination with an active solvent. Latent solvents are usually alcohols and are used widely in nitrocellulose lacquers in a ratio of 1 part alcohol to 2 parts active solvent.

solvent naphtha. See naphtha (2b).

Solvent Red 73. See 4',5'-diiodofluorescein.

solvent refining. See s

Solvent Yellow 3. See

solvolysis. A reaction i
vent, in which the sc
solved substance (sol
stance. Intermediate
formed in this proces
See also hydrolysis.

soman. (methylphosph
trimethylpropylester).
$(CH_3)_3CCH(CH_3)OP$
Properties: Colorless li
bp 167C, fp −70C, d
Hazard: Highly toxic b
skin absorption; may
cholinesterase inhibit
dose (man) 0.01 mg/

somatotropic hormone.
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sonolysis. The breakir
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"Sonostat."[309] TM for
based on nitrogenous
ural and synthetic fit

"Sonowax."[45] TM for
based on microcrystal
or as top finish on v